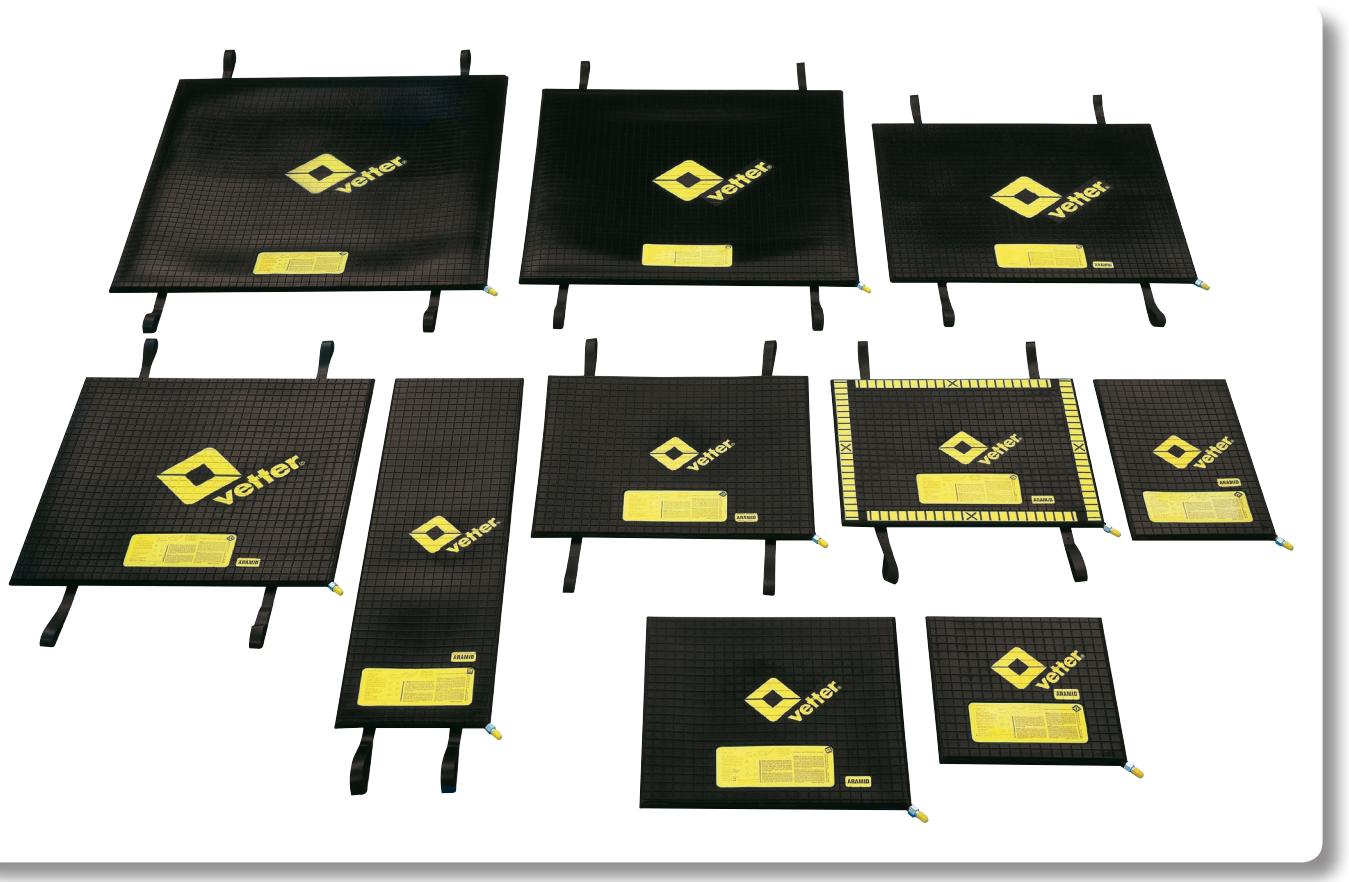
Industrial Pneumatics.

Operating Instructions

VETTER Industrial Lifting Bags 8 bar - Type IKV



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1. Important preliminary remarks

Only knowledge and the exact observance of this operating manual guarantee correct and reliable operation, achieve the best possible usage and ensure any claims made within the framework of the Vetter guarantee.

Only staff are to use Vetter Industrial Lifting Bags who have been instructed in their use by the manufacturer's operating manual and operating instructions.

The operating instructions given here are to be regarded as part of the product and are to be kept for the complete life duration of the product. In case the product should be passed on to a successive user then the operating instructions must also be included.

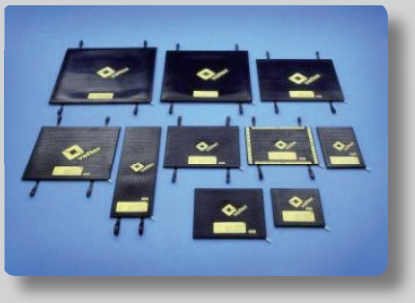
2. Description of the product

All Vetter Industrial Lifting Bags 8 bar are produced by hand in a layer structure and are made of high quality raw material so that a seamless bag is created as the finished product.

2.1 Description

a. Industrial Lifting Bags

Bag size selection is made according to the task. There are different sizes from 1.1 t to 67.7 tons with a choice of steel cord or aramide reinforcement.



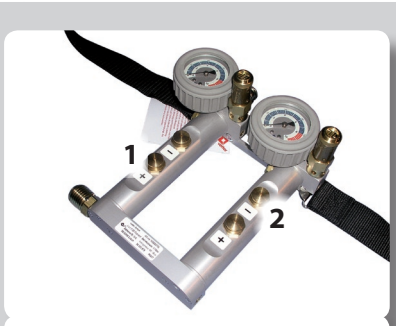
b. Inflation hoses

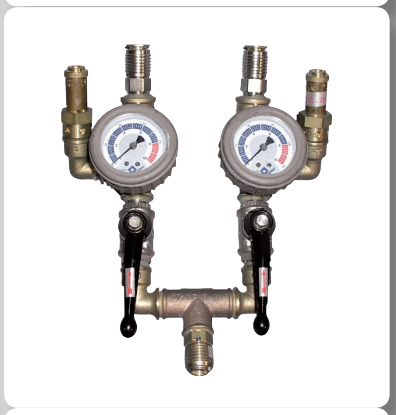
There are inflation hoses available (5 m and 10 m in length) which enable the user to control the Industrial Lifting Bags from a safe position. The colours of the hoses, RED and YELLOW, avoid any confusion during control of the different sides (inlets and outlets) of Industrial Lifting Bags.

c. Dual deadman controller 8 bar in plastic housing

Connect the inflation hoses to the outlet coupling on the rear side of the controller. Connect the air supply to the inlet coupling. Move the control lever to the front in order to inflate the Industrial Lifting Bag. In doing this, observe the corresponding manometer and load.

Release the control lever, thus ending the inflation process, when the required operating required operating pressure for the lift power or lift height is reached. The control lever automatically returns to the center position (zero) when released (deadman switched). The built-in safety valve automatically activates when the bag is unintentionally over-inflated above the maximum operating pressure of 8 bar or when there is an increase in pressure of





8 bar or when there is an increase in pressure in the bag due to a unforeseen loading of the bag.

The activation tolerance for opening and closing of the safety valve can be +/- 10 %.

Press the control lever in the opposite direction in order to deflate the bag or to reduce the load.

d. Dual deadman controller 8 bar, aluminium

Press down the lower button (1) in order to inflate the bag. Inflation is stopped when the button is released and it returns back to the zero position. The bag is released by pressing the upper button (2).

e. Single deadman controller 8 bar, aluminium

The single deadman controller, on the left, can be used when only one Industrial Lifting Bag is to be used.

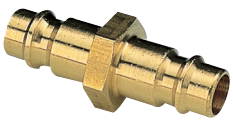
f. Dual controller 8 bar, fitting

Controller with inflation regulator using a ball valve without deadman switching. To empty the bag, open the head of the safety valve (1) by turning to the left. Close the safety valve by turning to the right after deflation.

g. Single controller 8 bar, fitting

The same version as described in e) but used for the control of only one Industrial Lifting Bag.

2.2 Additional accessories

Pos.	Article No.	Description	
1	1600 0120 00	**Adapter for construction site compressor**	
2	1600 0145 00	**Pressure regulator**	
3	1600 0082 00	**Adapter for compressed-air mains**	

2.3 The Vetter safety coupling system

a. Inlet coupling controller

Connect the air supply hose to the plug nipple of the inlet coupling on the controller. In doing this, firmly press the nipple into the the coupling until it latches in. Turn the brass sleeve of the coupling opposite to the safety pin for additional safety.

b. 8 bar inflation coupling

Firmly press the hose, resp. bag nipple, into the coupling until it latches in order to connect the inflation hose with the corresponding controller, resp. with the Industrial Lifting Bag. The coupling sleeve must lay on the support ring without any gap (1).

The nipple must be firmly pressed against the spring pressure in the coupling in order to release the connection (only in pressure-free condition). At the same time, the coupling sleeve must be pulled back. The connection is then released.

2.4 Effectiveness

Industrial Lifting Bags achieve their lifting effect by a shape change, i.e. both surfaces curve outwards. In order to use maximum lift strength, the whole effective area, i.e. the complete area minus the edge zone, must be completely under the load or completely fixed to be lifted and the maximum operating pressure applied. **A Industrial Lifting Bag develops the maximum lifting power at the beginning of the lift path!**

The bag develops a spherical shape as the lift height increases. This is the reason why the contact area with the load decreases until at a max. bag curvature this will be almost zero.

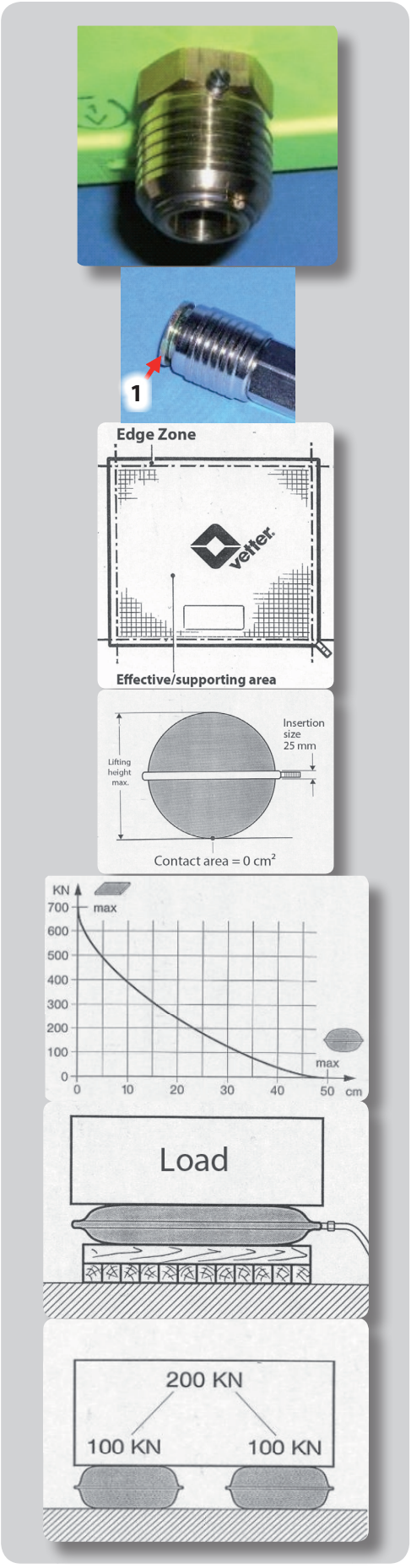
2.5 Effective load movement

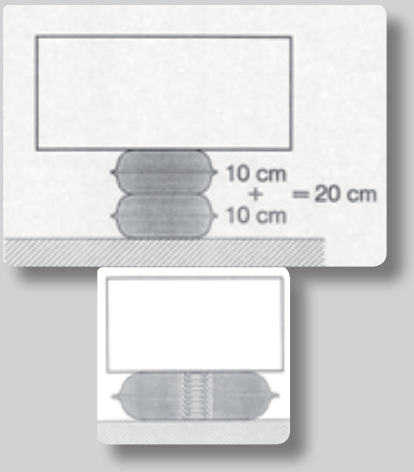
Load path diagram for the individual Industrial Lifting Bags are given on request.

The lower the space distance between load and Industrial Lifting Bag, the greater the lift power. In order to fully use the strengths of the Industrial Lifting Bag, the distance between load and bag should be at a minimum.

In case the lift power produced by one Industrial Lifting Bag is not sufficient then a number of bags can be positioned next to each other when the load is slip-free. However, a separate controller must be used for each bag.

If the lift power of only one Industrial Lifting Bag is not sufficient then **a maximum of two bags** can be placed on top of each other when the load is slip-free. This configuration has an additive effect for the lift height of both Industrial Lifting Bags.





Never position 3 or more bags on top of each other!
Never stand in front of the Industrial Lifting Bag!
Danger area!

2.6 Correct handling and usage

The Industrial Lifting Bag is primarily a pneumatic (normally with air) device. It can be used as a working device in order to lift or move loads. E.g. to press, push, split etc.

2.7 Safety instructions

Only prespecified protective clothing is to be worn during operation. Industrial Lifting Bags must only be used with compressed air. It is imperative that no inflammable or aggressively acting gases be used.

Never place more than 2 Industrial Lifting Bags over each other.

Avoid pointed objects, such as screws, spikes etc. Never place bags on sharp edges or objects which are hot. Use suitable layers of lining and cover the complete positioning area of the bag. Protect the bag from sparks coming from welding or cutting work. Do not subject bags to heavy loads such as hydraulic stamps, winches or falling objects.

Do not stay underneath a load being lifted, never hold or touch the load from underneath !
Remain at a safe distance from the load!

Avoid shearing effects by squeezing the bag during deflation!

Never stand in front of the load but always at the side of it because under unfavourable conditions it may swing out!

3. Preparing the product for use

3.1 Preparations for operation

Get Industrial Lifting Bags as well as filling device ready. Ensure sufficient air supply.

Only perfectly operating and inspected Industrial Lifting Bag systems are to be used.

4. Operating instructions

4.1 Limit for the period of use

Industrial Lifting Bags are subject, the same as other rubber products, to natural aging. The first sign of material aging is the loss of flexibility, this is especially seen in the formation of „age cracks". If these cracks propagate so far along the upper layer so that the supporting cord layer (Aramide) is no longer fully insulated then this can quickly limit the tear resistance of the bag wall. This can cause wall tearing and thus lead of bursting.

4.2 Care and storage

The Industrial lifting bag equipment is to be cleaned in periodical intervals. Cleaning is normally carried out with warm water and a detergent.

Cleaning must never be carried out with a chemical cleaning agent and never with high-pressure hot water devices.

Drying is made at normal room temperature.

DIN 7716 is to be observed with long storage periods.

5. Repetitive tests

Industrial Lifting bag systems are to be subjected to repetitive tests.

- ✓ Testing on acceptance
  Testing for completeness by the person/people delegated by the user.
  Visual check and operation test by a trained person according to the operation manual.
- ✓ The Industrial lifting bag system is to be subjected at least once every year to a visual check and operation test by a trained person.
  This test is to be documented.
- ✓ The Industrial lifting bag system is to be given a test, by manufacturer if there is any doubt about the safety or reliability.

The user is responsible for the correct and professional execution of the repetitive tests.

Visual check:

A visual check should be made for the following types of damage:

- ✓ Damage caused by separation
- ✓ Damage caused by cuts
- ✓ Damage caused by puncture, cracks
- ✓ Damage caused by heat and acids
- ✓ Damage like porous cover layer

The bag must be immediately discarded if, during inspection, established that there is damage and that the support cord (steel or ARAMIDE) shows through. Repair is not possible. Danger of bursting!

6. Technical Data

Industrial Lifting Bags aramide reinforcement							
Type		**IKV 1**	**IKV 3**	**IKV 5**	**IKV 6**	**IKV 10**	**IKV 12**
Art.-No.		5100010800	5100010900	5100011000	5100011100	5100011200	5100010600
Lift power,max	to	1.0	3.3	5.7	6.4	9.6	12.0
	US tons	1.1	3.6	6.3	7.0	10.6	13.2
Lift height, max	cm	7.5	12.0	14.5	16.5	20.3	20.0
	inch	3.0	4.7	5.7	6.5	8.0	7.9
Size	cm	14x13	25.5x20.0	28x28	29.5x29.5	37x37	32x52
	inch	5.5x5.1	10x7.9	11x11	11.6x11.6	15x15	13x20
Insertion height	cm	2.5	2.5	2.5	2.5	2.5	2.5
	inch	0.98	0.98	0.98	0.98	0.98	0.98
Air capacity	l	2.7	15.8	28.4	39.6	82.8	96.3
	cu.ft.	0.1	0.6	1.0	1.4	2.9	3.4
Operating pressure max.	bar	8	8	8	8	8	8
	psi	116	116	116	116	116	116
Test pressure	bar	14	14	14	14	14	14
	psi	203	203	203	203	203	203
Weight	kg	0.5	1.0	1.4	1.9	3.3	3.9
	lbs	1.1	2.2	3.1	4.2	7.3	8.6

Type		IKV 18	IKV 20	IKV 24	IKV 24 L	IKV 31	IKV 35 L
Art.-No.		5100011300	5100011400	5100011500	5100011600	5100011700	5100011800
Lift power,max	to	17.7	19.4	24.0	24.0	31.4	35.8
	US tons	19.5	21.4	26.5	26.5	34.6	39.5
Lift height, max	cm	27.0	28.0	30.6	20.1	37.0	31.0
	inch	10.6	11.0	12.0	7.9	14.6	12.2
Size	cm	47x52	48x58	52x62	31x102	65x69	43x115
	inch	19x20	19x23	20x24	12x40	26x27	17x45
Insertion height	cm	2.5	2.5	2.5	2.5	2.5	2.5
	inch	0.98	0.98	0.98	0.98	0.98	0.98
Air capacity	l	195.3	224.1	296.1	211.5	517.5	349.4
	cu.ft	6.9	7.9	10.4	7.5	18.0	12.3
Operating pressure max.	bar	8	8	8	8	8	8
	psi	116	116	116	116	116	116
Test pressure	bar	14	14	14	14	14	14
	psi	203	203	203	203	203	203
Weight	kg	5.7	6.2	7.2	6.8	10.1	10.0
	lbs	12.6	13.7	15.9	15.0	22.3	22.1

Type		IKV 40	IKV 48	IKV 54	IKV 68
Art.-No.		5100011900	5100012000	5100012100	5100012200
Lift power,max	to	39.6	49.3	54.4	67.7
	US tons	43.7	54.3	60.0	74.6
Lift height, max	cm	40.2	45.5	47.8	52.0
	inch	15.8	17.7	18.8	20.5
Size	cm	78x69	82x82	86x86	95x95
	inch	31x27	32x32	34x34	37x37
Insertion height	cm	2.5	2.8	2.8	2.8
	inch	0.98	1.1	1.1	1.1
Air capacity	l	675.0	900.0	1,117.8	1,457.1
	cu.ft.	23.6	31.8	39.5	51.4
Operating pressure max.	bar	8	8	8	8
	psi	116	116	116	116
Test pressure	bar	14	14	14	14
	psi	203	203	203	203
Weight	kg	12.2	14.4	17.3	20.7
	lbs	26.9	31.8	38.1	45.6

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EC Conformity Declaration

in accordance with Directive 2006/42/EC

Manufacturer name and address

Vetter GmbH
A Unit of IDEX Corporation
Blatzheimer Str. 10 - 12
53909 Zülpich

We hereby declare that the Industrial Lifting Bags (Aramide) for lifting and lowering loads

Type: _____
Serial-No.: _____
Model: _____
(refer to equipment label, to be entered by the customer)

meets the following relevant provisions:

Directive 2006/42/EC on Machinery

Applied harmonised standards, references to which have been published in the Official Journal of the European Union:

DIN EN ISO 12100

EN 13731

Applied national standards and technical specifications:

Authorised representative for the compilation of technical documents:

Vetter GmbH
A Unit of IDEX Corporation
Blatzheimer Str. 10 - 12
53909 Zülpich

This EC Conformity Declaration was issued:

Zülpich, 27.03.12
(Place, Date, Signature) (Identification of signatory)

Place your trust in emergency pneumatics!

We are the company who can help you, find a solution to your problem!

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A Unit of IDEX Corporation

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